



lamydia trachomatis **Genital Infections** ***in*** **Military Service** **Members**

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Chlamydia-US Military:

Important Points

Chlamydia (Ct) infections

- **Highly prevalent in young women & men**
- **Usually silent**
- **Untreated (women) →spread & sequelae**
- **Untreated (men) →spread, possible sequelae**
- **Easy to diagnose & treat**
- **Control: mass & individual screening**
- **Screening: Cost-effective in high risk females**

Chlamydia-US Military: Important Points

Chlamydia (Ct) infections

- **Screening may be cost-effective in males**
- **Males have not been well studied; data are needed**
- **Recruit training: ideal for intervention**
- **Evaluation of periodic clinical screening requires reliable surveillance data, to include lab data**
- **The military impact of Ct is poorly defined**
- **The AFEB has been looking at Chlamydia in the military for over five years**

Chlamydia-US Military: Early 1990s

Army inpatient data
EP*

PID*

<u>Year</u>	<u>Cases</u>	<u>Rate+</u>	<u>Cases</u>	<u>Rate+</u>
1991	1276	1.6%	960	1.2%
1992	1039	1.4	977	1.3
1993	800	1.1	877	1.2

Unpublished data

*PID = Pelvic inflammatory disease

*EP = Ectopic pregnancy

+Cases/Army annual female population x 100

+National PID rate (comparable period, 15-44 yrs) = 0.3%

Chlamydia-US Military: Screening Female Recruits

<u>Year (s)</u>	<u>Service</u>	<u>Screened</u>	<u>Prevalence Positives*</u>
1996-1997 ¹	Army	13,204	9.2% (to >15%)
1996-1999 ²	Army	23,010	9.5% (8.5-9.9%)
1999-2000 ³	Marines	>2,000	14%
1997-1999 ⁴	Navy	22,977	4.3%+

¹~~Gaydos CA et al. *NEJM* 339:739, 1998.~~

²Gaydos CA et al. *Sexually Transmitted Diseases* 30:539, 2003.

³Boyer CB, Shafer MA. *Adolescent Health* 30:129, 2002.

⁴Brodyne S, Shafer MA. *Sexually Transmitted Diseases* 30:545, 2003.

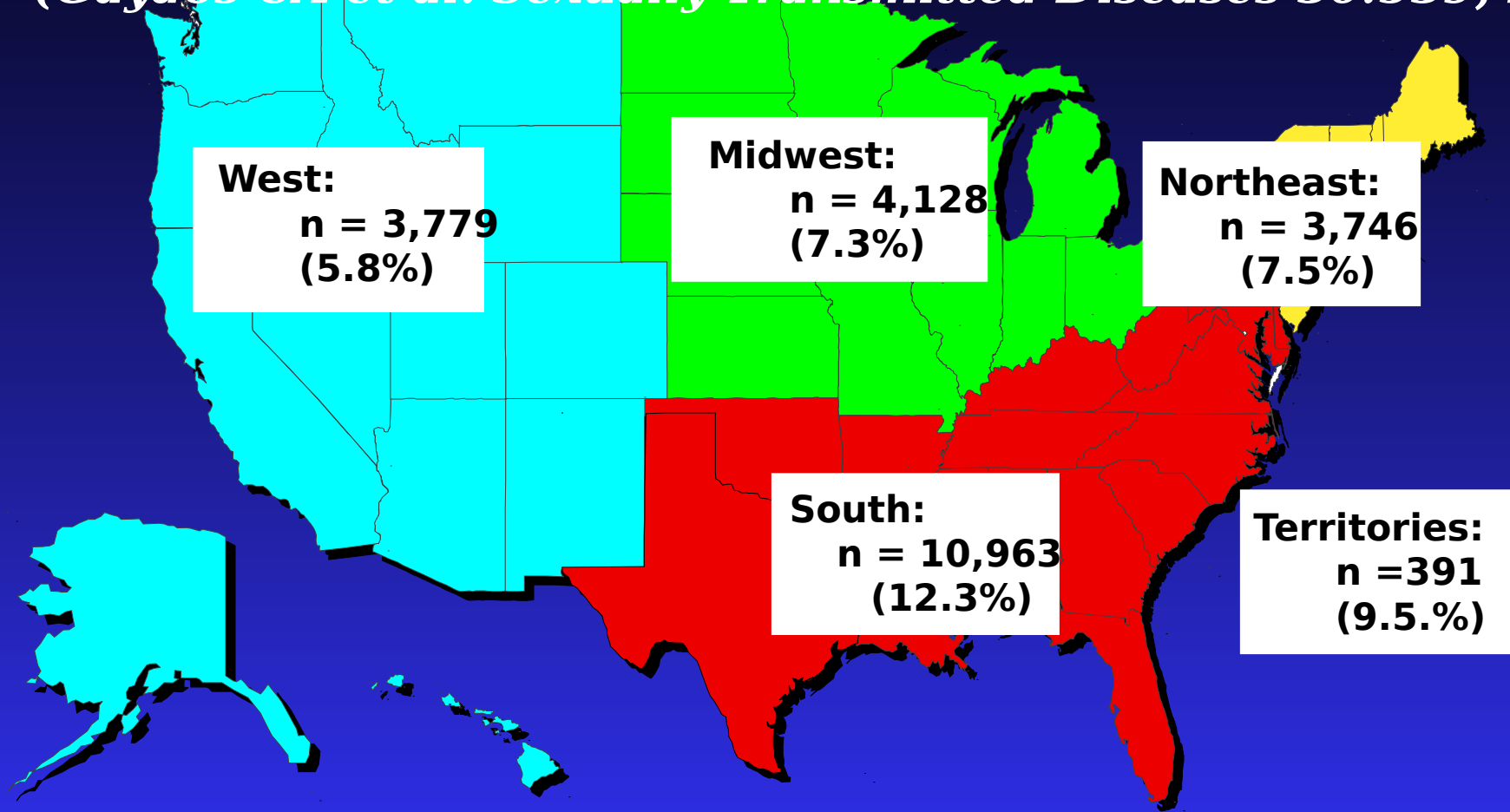
*Healthy People 2010 Goal = 3%.

+A less sensitive, unamplified test was used to test Navy recruits.

Female U.S. Army Recruits: 1996-1999

Chlamydia Prevalence 9.5%, Urine LCR (n=23,007)

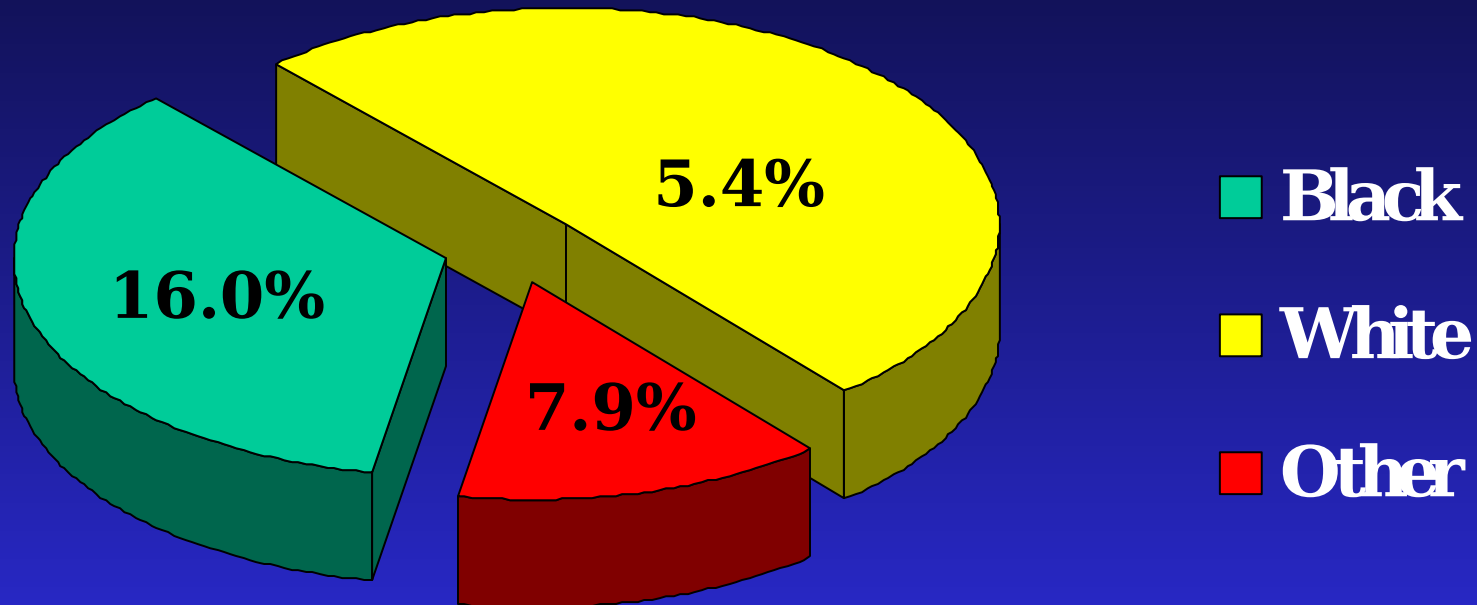
(Gaydos CA et al. Sexually Transmitted Diseases 30:539, 2003)



CDC Reporting Region: Northeast, South, Midwest, West, Territories
3 individuals missing region assignment.

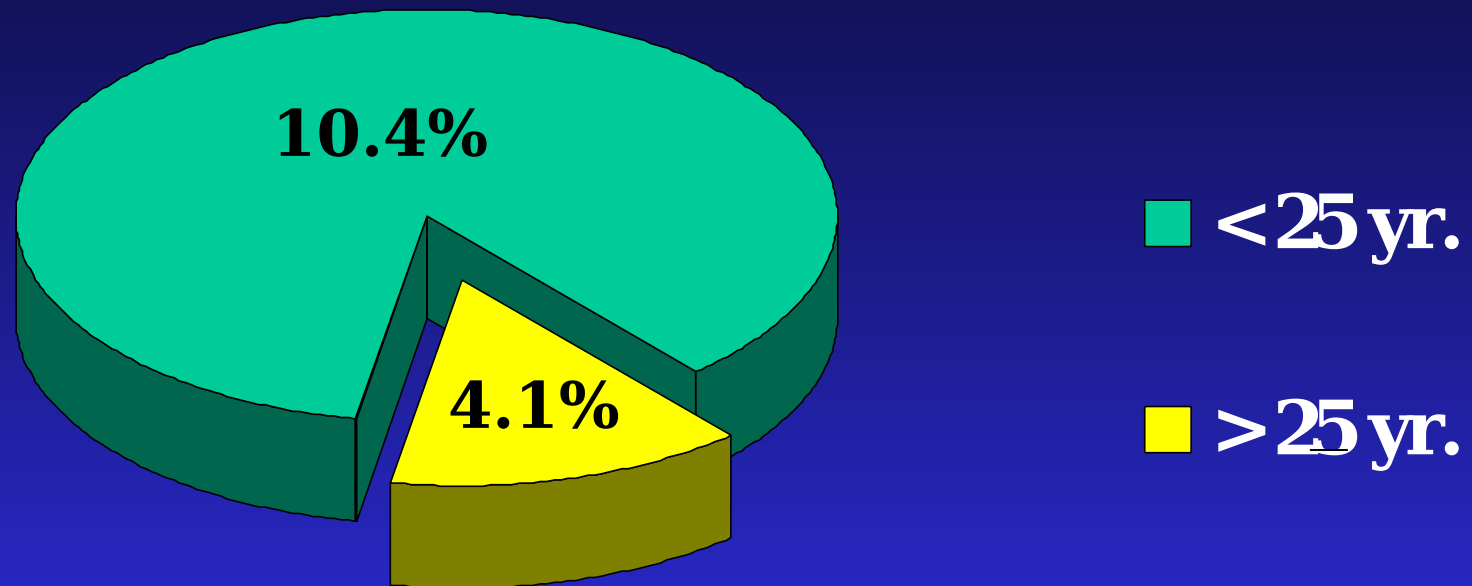
Reported Race: Chlamydia Prevalence, % (n = 23,010 women)

(Gaydos CA et al. Sexually Transmitted Diseases 30:539, 2003)



Young Age: Chlamydia Prevalence, % (n = 23,010 women)

(Gaydos CA et al. Sexually Transmitted Diseases 30:539, 2003)



Chlamydia-US Military: Cost Effectiveness of Screening Female Army Recruits

Howell MR et al. *Sexually Transmitted Diseases* 26:519, 1999.

<u>NO SCREENING</u>	<u>SCREENING (by age)</u>	
Population	10,000 (9.2% Prev)	10,000 (9.2% Prev)
Infections	920	
Cases of PID	276	54
Cost	\$221,000	\$217,600 (\$15/ PID case saved)

Howell MR et al. *American Journal of Preventive Medicine* 19:160, 2000.

Screening all female recruits in a cohort of 10,000

Basic Training attrition: 13%

Women going in the Army Reserve & National Guard: >40%

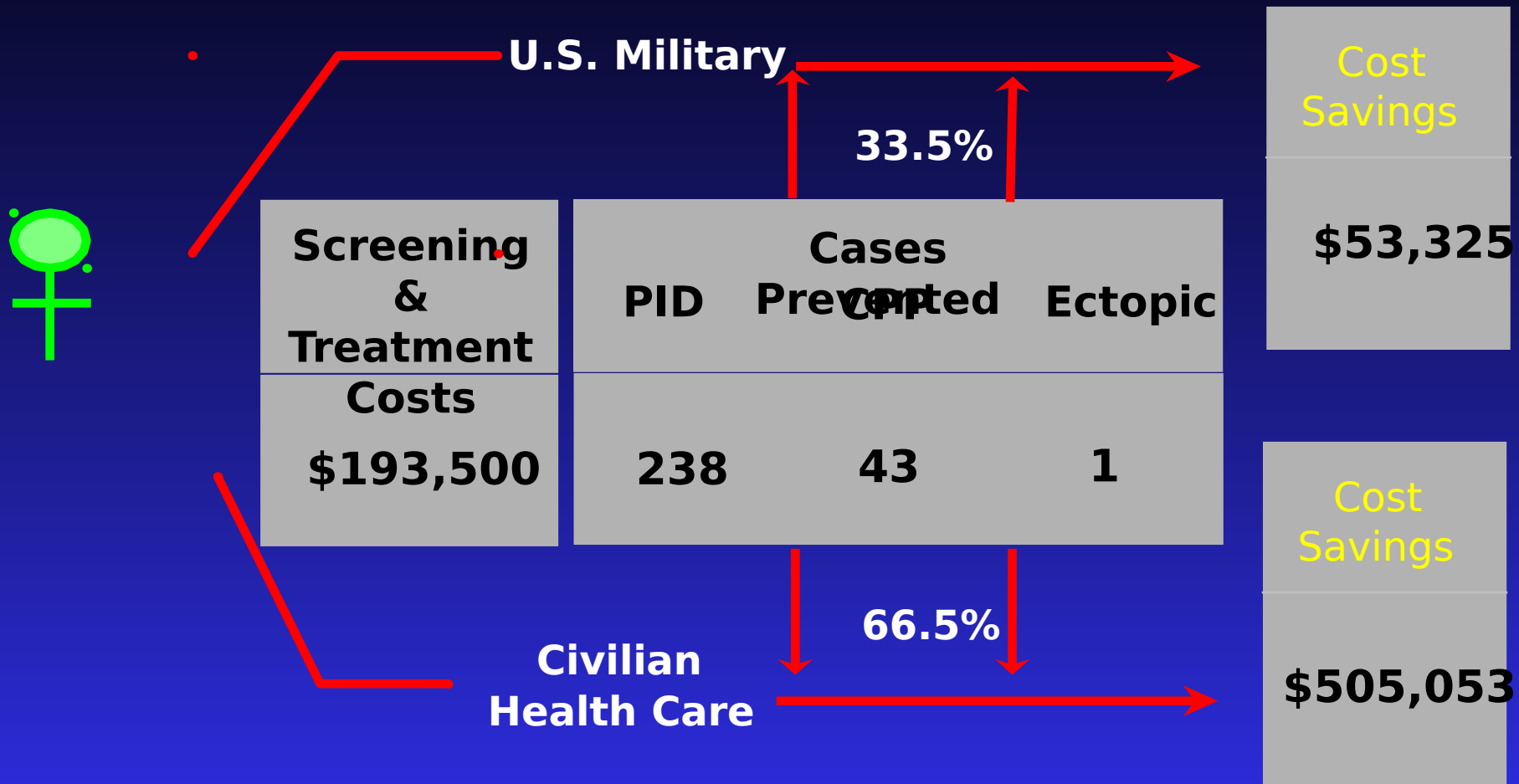
Program cost: \$193,500

Projected cost savings to the civilian sector: \$505,053

Projected cost savings to the Army: \$53,325

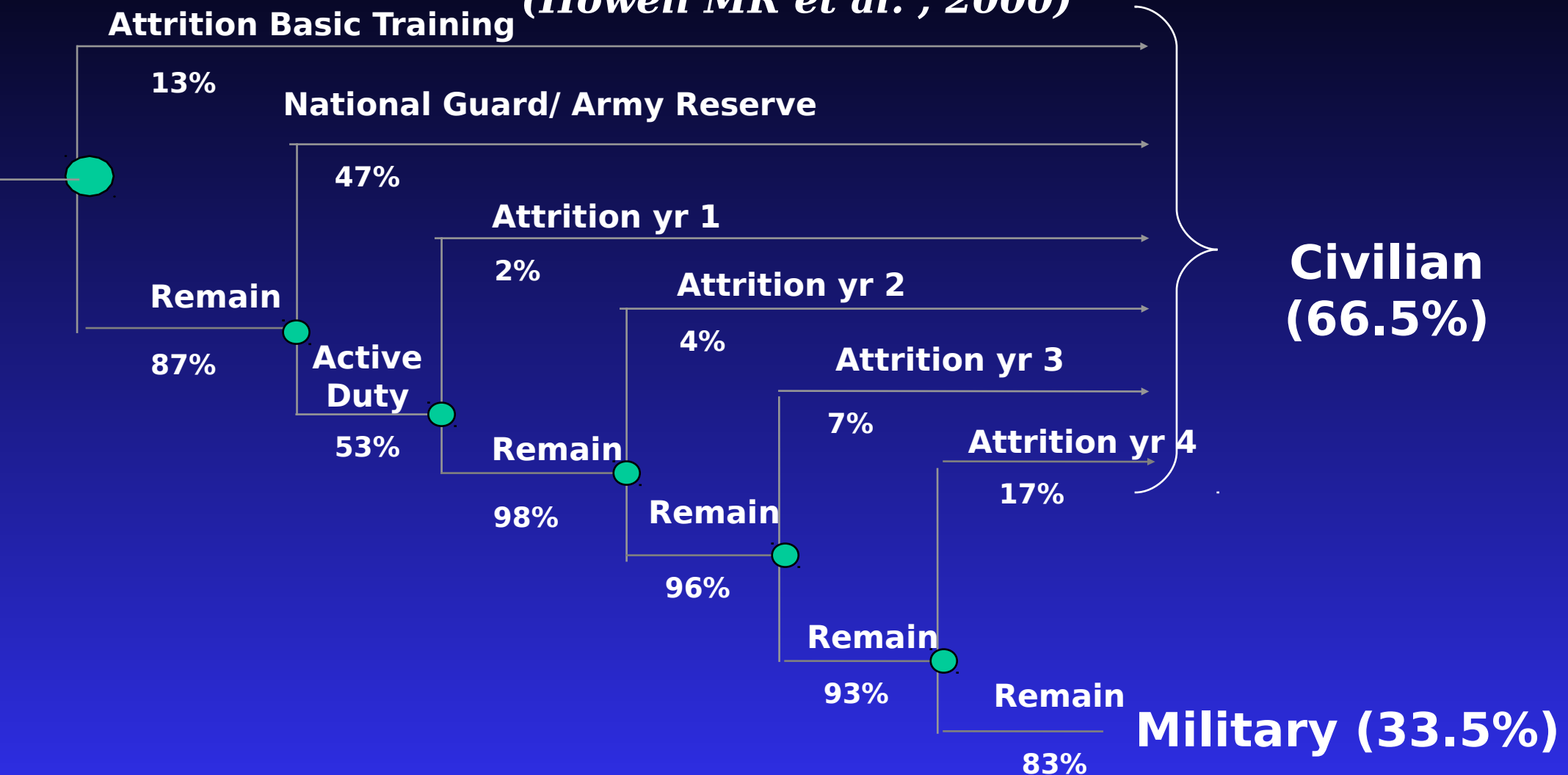
Cost Savings for Screening Female Army Recruits

(Howell MR et al. , 2000)



Decision Tree for Female Army Recruits in Basic Training

(Howell MR et al. , 2000)



Chlamydia-US Military: Morbidity in Screened & Unscreened Female Soldiers

Clark KL et al. *Sexually Transmitted Diseases* 29:1,
2002.

Hospitalizations in 7,053 screened & 21,021
unscreened women who entered the Army in 1996
and 1997.

<u>REASON</u>	<u>SCREENED (Counts)*</u>	<u>UNSCREENED (Counts) *</u>
PID	4.6 (50)	Ectopic Pregnancy 2.6 (28)
1.9 (70)		
Infertility	<0.01 (2)	<0.01 (9)
Combined**	7.2 (78)	6.8 (232)
Any reason	199 (2163)	224 (232)***

*Rates of subsequent hospitalizations per 1000 person-years.

**Combined = PID, ectopic pregnancy and infertility

***p<0.001

Chlamydia-US Military: Screening Male Recruits

<u>Year (s)</u> <u>Positives</u>	<u>Service</u>	<u>Screened</u>	<u>Prevalence</u>
1998-1999 ¹	Army	2273	5.3% (to ~12%)
1999-2000 ²	Army	3911	4.7% (to ~11%)

¹Cecil JA et al. *The Journal of Infectious Diseases* 184:1216, 2001.

²Arcari CM et al. *Sexually Transmitted Diseases* 31:443, 2004.

Chlamydia-US Military: Cost-Effectiveness in Army Male Recruits

**Cost-Effectiveness Analysis of Screening United States Army Male Basic
Training Recruits for Chlamydia trachomatis**

Shuping EE, Gaydos JC, Gaydos CA

**European Society for Chlamydia Research, Budapest, Hungary, September 1-
4, 2004**

Screening in Army male recruits was not cost effective
The cost of screening compared to no screening was
\$709 to \$2,514 per case of PID prevented in female
contacts

Better information and data could change the outcome:
Number of contacts per infected male
Ability to identify and treat female contacts
Cost of testing

Chlamydia-US Military: The Force

Prevalence Studies of Active Duty Forces

Navy women, dry dock, CA 2.7% Brodine, 1998

Navy women, shore-based, CA 6.9% Brodine, 1998

Navy women 4.2% Thomas, 2000

Air Force women ≤ 25 years 5.8% Sjoberg, 2001
(asymptomatic)

Marine men, shipboard, W. Pacific 3.4% Brodine, 1998

Marine men, shore-based, Japan 5.2% Brodine, 1998

Prevalence Studies of Clinic Populations

Army women, Ft Bragg, NC 11.6% Rompalo, 2001

Army Pap clinic, Ft Bragg, NC 7.3% Gaydos, 1998
(asymptomatic)

Chlamydia-US Military: Armed Forces Epidemiological Board Recommendations WOMEN¹

**ALL NEW FEMALE RECRUITS SHOULD UNDERGO
SCREENING:
IDEALLY, AS SOON AS PRACTICAL AFTER JOINING
WITHIN THE FIRST YEAR OF SERVICE IS ACCEPTABLE**

**ALL FEMALE SERVICE MEMBERS SHOULD BE ROUTINELY
SCREENED AT EACH RECOMMENDED PAP SMEAR TO
AGE 25 YEARS AND AS CLINICALLY INDICATED
THEREAFTER.**

**~~DEVELOP AND DISSEMINATE APPROPRIATE EDUCATIONAL
PROGRAMS AT APPROPRIATE TIMES.~~**

**¹ARMED Forces Epidemiological Board Recommendation
Regarding Chlamydia Screening, 25, May 1999.**

Chlamydia-US Military: Armed Forces Epidemiological Board Recommendations MEN¹

APPROPRIATE TESTING OF MALES IS ENCOURAGED.

**IMPLEMENT PILOT PROGRAMS IN MEN, COLLECT
PERTINENT DATA AND REPORT BACK TO THE AFEB.**

**DEVELOP AND DISSEMINATE APPROPRIATE
EDUCATIONAL PROGRAMS AT APPROPRIATE TIMES.**

**¹ARMED Forces Epidemiological Board
Recommendation Regarding Chlamydia Screening, 25,
May 1999.**

Chlamydia-US Military: Armed Forces Epidemiological Board Recommendations

CURRENT STATUS OF SCREENING FEMALES AT RECRUIT TRAINING CENTERS¹

Routine chlamydial screening is part of female recruit medical processing:

US Navy

US Marine Corps

US Coast Guard

Routine chlamydial screening of females IS NOT DONE at recruit training centers:

US Army

US Air Force

¹Brodine S, Shafer MA. Sexually Transmitted Diseases 30:545, 2003.

Chlamydia-US Military: Health Plan Employer Data & Information Set (HEDIS®)

<u>Year</u>	<u>Commercial</u>^{1*}	<u>Medicaid</u>^{1*}	<u>US Military</u> ^{2,3*}
1999	20%	28%	
2000	25%	36%	
2001	26%	38%	35%
<i>(90th percentile)</i>			

***No. eligible female enrollees tested ÷ No. sexually active females,
aged 16-26 years, continuously enrolled in the plan.**

¹MMWR 53:983, October 29, 2004.

²National Quality Management Program. Chlamydia Testing for Females

Enrolled to Military Treatment Facilities. Vol. 2003. Falls Church, VA: National Quality Management Program, 2002.

³Brodine S, Shafer MA. Sexually Transmitted Diseases 30:545, 2003.

Chlamydia-US Military: RECOMMENDED POLICY ISSUES*

Screen all female recruits during basic training (or provide evidence that an equally effective program exists).

Follow current Centers for Disease Control and Prevention guidelines for diagnostic tests. Amplification tests are preferred.

Follow current Centers for Disease Control and Prevention guidelines for clinical screening, diagnosis, treatment and prevention.

Enforce mandatory reporting and periodically evaluate reporting accuracy and completeness.

From Working Group recommendations of the DoD Sexually Transmitted Diseases Prevention Committee and the DoD Global Emerging Infections Surveillance and Response System, 2002-2004.

Chlamydia-US Military: RECOMMENDED POLICY ISSUES

Offer partner notification and referral services.

Develop and provide information, education and behavioral modification programs.

Implement pilot programs in men, collect pertinent data and report back to the AFEB.

Determine and follow the impact of PID and ectopic pregnancies on US Forces, to include monitoring PID and EP in women evacuated from deployed areas.

Chlamydia-US Military

THANK YOU

QUESTIONS?